

Date: Fri, 3 Sep 93 04:30:23 PDT
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V93 #30
To: Ham-Homebrew

Ham-Homebrew Digest Fri, 3 Sep 93 Volume 93 : Issue 30

Today's Topics:

 311A tube specs needed
 FPGAs for kit designing - summary #1
 Grid Dip Meters (2 msgs)
 OCTAL PLUGS NEEDED
 Project 6: 80M QRP 'colorburst' CW xmtr
 synchronous detector (July QST)

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Thu, 2 Sep 93 05:18:55 GMT
From: mercury.hsi.com!a3bee2!cyphyn!randy@uunet.uu.net
Subject: 311A tube specs needed
To: ham-homebrew@ucsd.edu

Anyone know the tube specs for a 311A/B (NOT 311/211!)
Made by Western Electric....
Its some kind of 5 pin , grip top, pentode...sort of like a 24A

I can only guess that the filament is 2.5 volts (ohm meter sez its there!)

The rest I can safely say is screen= 67.5v and plate=90-180v.

But...I gotta find the filament volts.

tnx

--

Randy KA1UNW

If you get a shock while
servicing your equipment,
DON'T JUMP!

"Works for me!"

-Peter Keyes

You might break an expensive tube!

Date: Wed, 1 Sep 1993 20:41:42 GMT

From: waikato!comp.vuw.ac.nz!actrix.gen.nz!arnim@decwrl.dec.com

Subject: FPGAs for kit designing - summary #1

To: ham-homebrew@ucsd.edu

I agree, from a professional perspective, that as time goes by, general purpose TTL-type logic is going to become harder to get and consequently significantly more expensive, with perhaps the exception of high usage driver/receiver/latch octals and similar quasi-I/O oriented formats.

The FPGA market is booming, I'd be very surprised if it wasn't the fastest growing sector of VLSI design. While it started with MMI (AMD now) PALs in the early '80s, and then grew a little with the Altera EPROM slightly-bigger-than-PALs, it really became useful from a logic integration point of view when Xilinx jumped into the scene.

Modern FPGAs, as opposed to PALs, are made with

- a) _lots_ of Flip Flops internally
- b) lots more I/O than PAL-type products.

Now, from a hobbyist point of view, the Xilinx tools are pretty dear. I don't know what the US price is for an entry level system, but to be fair, of all the development tools I have worked with in 15 or so years in the game, the Xilinx tools are the most complete and bug-free. From a hobbyist point of view, another bonus with the Xilinx approach is that the parts are SRAM based, which makes them quite easy to reprogram. If you use byte-wide EPROM, you will sacrifice quite a few I/O pins, but if you're doing download from a processor, that can be quite sweet if you do it serially.

Date: Tue, 31 Aug 1993 22:11:37 GMT

From: mcsun!sun4nl!relay.philips.nl!philica!geertj@uunet.uu.net

Subject: Grid Dip Meters

To: ham-homebrew@ucsd.edu

nat@thorn.kpc.com (Natarajan Gurumoorthy) writes:

> Could anybody send me pointers to articles on homebrewing a grid
>dip oscillator. Alternately could someone send me circuit that I could
>build. I am primarily interested in the HF bands.

There are several. I was surprized not to find one in the ARRL handbook (hint),
but 'amateur radio techniques' has several.

However, the schematics isn't the most important thing; the construction is.
Because you're building a wide-range oscillator, pay special attention to
the wiring, which should be very short to non-existing. Milimeters
really do count here. Even if your device is meant for HF-only, there is
a good chance that the device might oscillate on VHF or anywhere else.
This causes false dips and other nastyness.

Also, pay attention to the decoupling, which should be wideband too,
for the same reasons.

A griddipper with removable coils is almost always a HF device; I never
saw one that worked right at, say, 400 MHz and still had removable
coils.

IMHO, the best way to build one is to fiddle around with the place
of the variable capacitor and the coil connector to make the wires short,
then build the oscillator 'floating' in this construction using extreme
short wires. Stray capacity will be minimal then.

Hope this helps,

Geert Jan PE1HZG

Date: 1 Sep 93 12:25:47 EDT
From: dog.ee.lbl.gov!overload.lbl.gov!agate!howland.reston.ans.net!usc!
yeshua.marcam.com!news.kei.com!bloom-beacon.mit.edu!world!ksr!jfw@network.ucsd.edu
Subject: Grid Dip Meters
To: ham-homebrew@ucsd.edu

geertj@ica.philips.nl (Geert Jan de Groot) writes:
>nat@thorn.kpc.com (Natarajan Gurumoorthy) writes:
>> Could anybody send me pointers to articles on homebrewing a grid
>>dip oscillator.
>There are several. I was surprized not to find one in the ARRL handbook,
>but 'amateur radio techniques' has several.

Which edition? The 1984 edition has one (two, actually).

>A griddipper with removable coils is almost always a HF device; I never
>saw one that worked right at, say, 400 MHz and still had removable coils.

The 1984 Handbook has a circuit called the "Slipper Dipper" which is a VHF grid, er, base dipper. I don't know if it appears in later editions, though.

Date: 3 Sep 1993 02:12:55 GMT
From: nothing.ucsd.edu!brian@network.ucsd.edu
Subject: OCTAL PLUGS NEEDED
To: ham-homebrew@ucsd.edu

You aren't going to believe this, but they're still manufactured. Check the listing for WPI corp in the Newark catalog. (page 608 in my edition). They're even reasonably priced!
- Brian

Date: Wed, 1 Sep 1993 23:04:18 GMT
From: news.Hawaii.Edu!uhunix3.uhcc.Hawaii.Edu!jherman@ames.arpa
Subject: Project 6: 80M QRP 'colorburst' CW xmtr
To: ham-homebrew@ucsd.edu

Jeff

Date: Wed, 1 Sep 1993 12:31:29 GMT
From: newsflash.concordia.ca!mizar.cc.umanitoba.ca!eeserv.ee.umanitoba.ca!porban@uunet.uu.net
Subject: synchronous detector (July QST)
To: ham-homebrew@ucsd.edu

In article <m86vo8INNnj0@deimos.cs.utexas.edu> zelle@cs.utexas.edu (John Marvin Zelle) writes:

>
>This is a repost of a sci.electronics question to which I
>have not gotten any responses. Perhaps some of you homebrewers can
>help me out.
>
>I am building a (relatively) inexpensive high-quality shortwave
>receiver (primarily) for international broadcast-band listening. My
>current prototype uses simple diode envelope detection, and I would
>like to replace this with a synchronous detector. I have looked at a
>number of articles on synch detectors and particularly liked the one
>in the July QST which uses a couple of NE602's and an NE604. I'd like
>to try this out, but I have a couple of questions.
>

...

>

>Second, my design uses an IF frequency of 9.83 MHz. I would rather
>not add a second conversion to a lower IF as extra band coverage will
>(eventually) be provided by converters, and I'm afraid I'll be taking
>a fidelity hit with a triple-conversion design. Will this design work
>at the 9.83 IF? I know the '604 is spec'ed up to 20 Mhz and the '602
>should work up to 200 Mhz, so these don't seem to present a problem.
>My concern is how much trouble I will have twiddling the PLL loop
>constant to get the locking range/rate right. I have no experience
>designing PLLs, and I'm worried it could be a bit tricky. I would be
>interested in hearing from anyone who has attempted synchronous
>detection at higher IF frequencies.

>

>

>Has anybody out there built this or other synch detectors? We've all heard
>the virute of these critters; let's hear about your experiences actually
>getting one to work!

>

>Thanks.

>

>-- John Zelle

> University of Texas-Austin

> Computer Sciences

>

>

Hi John,

I have played some time ago with a synch detector. I have built one for an old Sony 2001 radio, the first one with the PLL tuning. That radio is also dual conversion, the first IF is about 83MHz, the second 10.7Mhz. The VCO frequency had to be 10.7MHz. I have used the Signetics NE561 PLL chip, it has everything on it for a synch detector. That method of synch detection does not use method employed by the Sony 2010 (i.e. phase shifting USB or LSB and then mixing it) but locks a VCO to the carrier and feeds that and the received signal to a double balanced mixer. The 561 chip is good to 30MHz, and all the capacities were in the 10 to 30 pF range. That made it very sensitive to stray capacities. I was thinking about making a third conversion down to 455KHz IF, and doing the synch detection there. The performance was not what I was expecting, it was not better than the radio's own envilope detector, but I never really finished that project. As for PLL design, there is an excellent book on it by R.E. Best: PLLs, Theory, Design and Applications.

Have fun, Peter

--

Peter Orban

internet:orban@nrcamt.ime.nrc.ca

Date: (null)

From: (null)

Xilinx has been sort of cloned by a crowd called Concurrent, who were recently bought out by Atmel. That too is an SRAM based FPGA.

Unfortunately, the majority of the remaining offerings are based on anti-fuse technology, which would be quite unsuitable to the hobbyist market, I'd think. Program up a \$40 part, if its wrong, throw it away. That includes Actel, TI, Crosspoint (really swish stuff!!!) and a few others.

For my own part I am fortunate to have ready access to Xilinx tools, and I am rolling my own entry-level ISDN card for PC. While I will need a commercial S-interface chip, and it is a lot easier to have a commercial D-channel handler, I am rolling my own B-channel handler, ie. FIFO/DMA/HDLC handling in the Xilinx.

For the hobbyist side, ISDN is too expensive in this country, and a large part of that cost is the stupidly expensive CPE cost, ie. to get a useful TA or TE. But that is another issue...

Enough, I'd be curious to see what your FPGA packages cost State-side...

Arnim arnim@actrix.gen.nz or arnim@digitech.co.nz

Date: 1 Sep 1993 17:00:10 GMT

From: pravda.sdsc.edu!news.cerf.net!usc!howland.reston.ans.net!noc.near.net!
bigboote.WPI.EDU!duck!jmhill@network.ucsd.edu

To: ham-homebrew@ucsd.edu

References <25fvnj\$1lp@tribune.usask.ca>, <1993Aug26.171829.2600@cmkrnl.com>,
<30AUG199318465973@siva.bris.ac.uk>~

Subject : Re: What kits would you like to see?

Here is a project that I'd like to see, first a lead in introduction;

I read in a journal or two, fairly recently, reports of several companies that are planning to discontinue the manufacture and sales of discrete logic TTL chips. One article pointed out that such TTL logic chips are often used as, "glue" logic, which used to be implemented in discrete chips. Such, "glue" logic today is often implemented in some form of logic gate array or other scheme. Gate arrays allows the functionality of many TTL chips to be programmed

into a single chip.

If you look inside one of the early PCs, you will notice MASSES of TTL chips. A newer PC will have much fewer chips. Most of the TTL chips are replaced by a few gate array chips or application specific chips.

Gate arrays are a natural next step in logic integration, one form is the field programmable gate array(FPGA). Such a device, I would suppose, would be programmed like an EPROM. Thus using PC software, a design is developed, then programmed into the gate array. A single gate array can replace many different TTL devices wired in a myriad of ways. Just think what this does to inventory!

So down to the projects; First of all, a simple FPGA programmer that would allow designs to be downloaded from a PC, or copied. Second, a software package to allow design development.

Jonathan/KA1WZN
jmhill@ee.wpi.edu

End of Ham-Homebrew Digest V93 #30
